What is claimed is:

1. An optical filter comprising a substrate and a thin film that is formed on the substrate,

wherein the thin film comprises low refractive index layers and high refractive index layers that have a higher refractive index than the low refractive index layers, the low refractive index layers and the high refractive index layers being alternately laminated from the substrate side,

wherein in this thin film are further formed: a first laminated portion in which the refractive indices of the high refractive index layers gradually increase from the substrate side; a second laminated portion that is adjacent to the first laminated portion, and in which the refractive indices of the high refractive index layers are substantially the same as the highest refractive index from among the high refractive index layers constituting the first laminated portion; and a third laminated portion that is adjacent to the second laminated portion, and in which the refractive indices of the high refractive index layers gradually decrease from the second laminated portion side,

wherein a high refractive index variation layer portion, in which the refractive index of the high refractive index layer is set so as to be lower than the other two high refractive index layers that are adjacent on both sides thereof via the low refractive index layers, is inserted into at least one of the first laminated portion through the third laminated portion.

2. The optical filter according to claim 1, wherein the high refractive index variation layer portion is inserted at a boundary or in a vicinity of a boundary between the second laminated portion and the first laminated portion or between the second

laminated portion and the third laminated portion.

3. The optical filter according to claim 1, wherein a refractive index of the low refractive index layers is substantially the same as a refractive index of the substrate.

4. The optical filter according to claim 1, wherein if a design wavelength for a central wavelength (λ) of a wavelength band in which transmission is blocked is taken as λ/n (wherein n is an integer), then optical thicknesses of the high refractive index layers, the low refractive index layers, and the high refractive index variation layer portion are set to substantially n/4 of the design wavelength.

5. The optical filter according to claim 4, wherein an optical thickness of at least one of a layer forming an initial region that is adjacent to the substrate and an ultimate region that is on an opposite side from the substrate from the thin film is set to substantially n/2 of the design wavelength.

6. An optical filter comprising a substrate and a thin film that is formed on the substrate,

wherein the thin film comprises low refractive index layers and high refractive index layers that have a higher refractive index than the low refractive index layers, the low refractive index layers and the high refractive index layers being alternately laminated from the substrate side, and

wherein in this thin film are further formed: a first laminated portion in which the refractive indices of the high refractive index layers gradually increase from the substrate side; a second laminated portion that is adjacent to the first laminated portion,

and in which the refractive indices of the high refractive index layers are substantially the same as the highest refractive index from among the high refractive index layers constituting the first laminated portion; and a third laminated portion that is adjacent to the second laminated portion, and in which the refractive indices of the high refractive index layers gradually decrease from the second laminated portion side, and

wherein a low refractive index variation layer portion, in which the refractive index of the low refractive index layer is set so as to be higher than the other two low refractive index layers that are adjacent on both sides thereof via the high refractive index layers, is inserted into at least one of the first laminated portion through the third laminated portion.

7. The optical filter according to claim 6, wherein a refractive index of the high refractive index layers is substantially the same as a refractive index of the substrate.

8. An optical filter comprising a substrate and a thin film that is formed on the substrate,

wherein the thin film comprises low refractive index layers and high refractive index layers that have a higher refractive index than the low refractive index layers, the low refractive index layers and the high refractive index layers being alternately laminated from the substrate side,

wherein in this thin film are further formed: a first laminated portion in which the refractive indices of the high refractive index layers gradually increase from the substrate side, and the refractive indices of the low refractive index layers gradually decrease from the substrate side; a second laminated portion that is adjacent to the first laminated portion, and in which the refractive indices of the high refractive index layers

are substantially the same as the highest refractive index from among the high refractive index layers constituting the first laminated portion, and the refractive indices of the low refractive index layers are substantially the same as the lowest refractive index from among the low refractive index layers constituting the first laminated portion; and a third laminated portion that is adjacent to the second laminated portion, and in which the refractive indices of the high refractive index layers gradually decrease from the second laminated portion side, and the refractive indices of the low refractive index layers gradually increase from the second laminated portion side, and

wherein at least one of a high refractive index variation layer portion, in which the refractive index of the high refractive index layer is set so as to be lower than the other two high refractive index layers that are adjacent on both sides thereof via the low refractive index layers and the low refractive index variation layer portion, in which the refractive index of the low refractive index layer is set so as to be higher than the other two low refractive index layers that are adjacent on both sides thereof via the high refractive index layers, is inserted into at least one of the first laminated portion through the third laminated portion.

9. The optical filter according to claim 6 or claim 8, wherein at least one of the high refractive index variation layer portion and the low refractive index variation layer portion is inserted at a boundary or in a vicinity of a boundary between the second laminated portion and the first laminated portion or between the second laminated portion and the third laminated portion.

10. The optical filter according to claim 6 or claim 8, wherein if a design wavelength for a central wavelength (λ) of a wavelength band in which transmission is

blocked is taken as λ/n (wherein n is an integer), then optical thicknesses of the high refractive index layers, the low refractive index layers, the high refractive index variation layer portion, and the low refractive index variation layer portion are set to substantially n/4 of the design wavelength.

11. The optical filter according to claim 10, wherein an optical thickness of at least one of a layer forming an initial region that is adjacent to the substrate and an ultimate region that is on an opposite side from the substrate from the thin film is set to substantially n/2 of the design wavelength.

12. An optical instrument provided with the optical filter according to any one of claims 1, 6, and 8.